
Conyza sumatrensis var. *leiotheca* (Compositae: Astereae), a New Combination for a Common Neotropical Weed

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ABSTRACT. *Conyza sumatrensis* is recognized as distinct from *C. bonariensis* and *C. canadensis*. *Conyza albida* and *C. floribunda* are treated as synonyms of *C. sumatrensis*. *Conyza sumatrensis* includes two varieties, and the new combination *C. sumatrensis* var. *leiotheca* is made for the nontypical variety, which is restricted to the Americas. *Conyza sumatrensis* var. *sumatrensis* is newly reported and documented in the United States; it also is found widely elsewhere in the Americas and is the sole variety occurring in the Old World.

Key words: Asteraceae, Astereae, Compositae, *Conyza*, *Erigeron*, Mesoamerica, North America.

Conyza sumatrensis (Retzius) E. Walker (synonyms: *Baccharis ivifolia* Blanco, *C. albida* Willdenow ex Sprengel, *C. floribunda* HBK, *Erigeron bonariensis* L. f. *grisea* Chodat, and *E. musashensis* Makino) is one of the most widespread and weedy species of *Conyza* Lessing (Compositae: Astereae). The species contains two varieties, with the typical variety occurring in both hemispheres and often misidentified as *C. bonariensis* (L.) Cronquist (synonyms: *Erigeron linifolius* Willdenow, fide Blake, 1917, and *E. crispus* Pourret). A second variety of *C. sumatrensis* generally has glabrous involucre, is restricted to the Americas, and is often misidentified as *C. canadensis* (L.) Cronquist. *Conyza sumatrensis* basically differs from *C. canadensis* by disciform (vs. subradiate) capitula and from *C. bonariensis* by a thyrsoide-paniculate (vs. commonly corymbiform) capitulescence. While *C. bonariensis*, *C. canadensis*, and *C. sumatrensis* presumably originated in the New World (Burt, 1948; Cuatrecasas, 1969; Drake del Castillo, 1886; Peng et al., 1998), each species now occurs pantropically, in the subtropics, and in some temperate zones. Although *Conyza primulifolia* (Lamarck) Cuatrecasas (which includes as a synonym *C. chilensis* Sprengel, the type of *Conyza*) was transferred to *Erigeron* L. by Greuter (2003), we prefer to recognize *Conyza* at the generic rank.

Conyza sumatrensis has been recognized in traditional references (e.g., Candolle, 1836; Persoon, 1807; Poiret, 1808; Sprengel, 1826; Willdenow, 1803), as well as in several Indo-Malay regional floras (e.g., Backer & Bakhuizen van der Brink, 1965; Koster, 1966; Miquel, 1856; Ridley, 1923). Most other floras of the last century or so (e.g., Baker, 1882; Beentje, 2002; Cronquist, 1976, 1980; Cuatrecasas, 1969; Hemsley, 1881), however, recognized only *C. bonariensis* and *C. canadensis* as distinct, yet *C. sumatrensis* occurs in each of these flora regions. Occasionally, *C. sumatrensis* has been recognized as distinct from either or both *C. bonariensis* and *C. canadensis* (e.g., Ariza Espinar, 1982; Barroso, 1959; Burt, 1948; Cabrera, 1959, 1978; Gray, 1862; Jovet & Vilmoren, 1975; Keil, 1993), but then generally under either the name *C. albida* Willdenow ex Sprengel or *C. floribunda* HBK. Burt (1948; sub *Erigeron*) appears to be the first to equate *C. floribunda* (1818) and *C. sumatrensis* (1788), but because the type of *C. sumatrensis* was seemingly lost he employed the next available name (*C. floribunda*). Following the works of Marshall (1973, 1974) and Walker (1971), many authors (e.g., Gamisans & Jeanmonod, 1998; Grierson & Springate, 2001; Hajra et al., 1995; Hind et al., 1993; Lisowski, 1991; Nakajima et al., 2001; Peng et al., 1998; Pruski, 1997; Randall, 2002; Sancho & Ariza Espinar, 2003; Soria & Zardini, 1995; Stanley & Ross, 1986; Walker, 1976; Wurzell, 1988) adopted the name *C. sumatrensis*, albeit sometimes in reference to plants of *C. bonariensis* (L.) Cronquist.

Infraspecies of each of the widespread *Conyza bonariensis*, *C. canadensis*, and *C. sumatrensis* are often recognized in floristic treatments (e.g., Cabrera, 1978; Cronquist, 1980; Cuatrecasas, 1969; McVaugh, 1984; Sancho & Ariza Espinar, 2003). Marshall (1974) validated the nontypical varietal name *C. sumatrensis* var. *floribunda* (HBK) J. B. Marshall for plants with a glabrous involucre surrounding disciform capitula, and Marshall (1973, 1974) and Sancho

and Ariza Espinar (2003) treated *C. sumatrensis* as containing solely two varieties. Ariza Espinar (1982) and Guédès and Jovet (1975) treated each variety of *C. sumatrensis* recognized by Marshall (1973, 1974) as a distinct species, but we find that these taxa are not worthy of specific recognition. Rather, we prefer a more conservative approach, thus agreeing with Marshall (1973, 1974) and Sancho and Ariza Espinar (2003) by recognizing *C. sumatrensis* in a broader sense and as including two varieties. Concomitantly, we recognized *C. bonariensis* in a much narrower sense than many authors.

Erigeron bonariensis var. *leiotheca* S. F. Blake (validated by Blake, 1917) was given as a taxonomic synonym of *Conyza sumatrensis* var. *floribunda* by Sancho and Ariza Espinar (2003), but has nomenclatural priority at the varietal rank. We find no other names with priority at this rank and here make the nomenclaturally correct combination for the non-typical variety of *C. sumatrensis* and provide a taxonomic overview of the species. Below we list the most pertinent synonyms; longer lists of synonyms of both varieties are found in Marshall (1973, 1974) and Sancho and Ariza Espinar (2003).

KEY TO SPECIES CENTERING ABOUT *CONYZA BONARIENSIS*

- 1. Leaves entire, margins generally long-hirsute; capitula subradiate, corollas of marginal florets subradiate; central colored portion of mid-series phyllaries generally narrower than the light-colored phyllary margin; disk corollas generally 4-lobed *Conyza canadensis* (L.) Cronquist
- 1'. Leaves entire to variously incised, margins generally strigulose; capitula generally disciform, corollas of marginal florets tubular, rarely subradiate; central green portion of mid-series phyllaries generally broader than the light-colored phyllary margin; disk corollas 5-lobed.
- 2. Plants often gray-pubescent; capitulescence corymbiform with lateral branches overtopping the main axis or less commonly thyrsoide-paniculate, pyramidal; capitula generally few, long-pedunculate; involucre basally broadened; phyllaries sometimes reddish purple-tipped; marginal florets in 4 or more series; fruiting receptacle ca. 4 mm broad; pappus sometimes reddish brown *Conyza bonariensis* (L.) Cronquist
- 2'. Plants not commonly gray-pubescent; capitulescence thyrsoide-paniculate, generally more or less cylindrical, lateral branches generally not overtopping the main axis; capitula generally many, short- or moderately pedunculate; involucre basally narrowed; phyllaries not reddish purple-tipped; marginal florets in 3 to 4 series; fruiting receptacle 1.5–2.5 mm broad; pappus stramineous.
- 3. Stems and leaves subglabrous or sparsely hirsute-pilose; involucre glabrous or rarely weakly puberulent.

- *Conyza sumatrensis* var. *leiotheca* (S. F. Blake) Pruski & G. Sancho
- 3'. Stems and leaves moderately to densely hirsute-pilose; involucre hirsute-pilose *Conyza sumatrensis* (Retzius)
- E. Walker var. *sumatrensis*

1. *Conyza sumatrensis* (Retzius) E. Walker, J. Jap. Bot. 46: 72. 1971. Basionym: *Erigeron sumatrensis* Retzius, Obs. Bot. 5: 28. 1789 [1788]. TYPE: Malaysia. Sumatra: Berastagi, Feb. 1921, H. Ridley s.n. (neotype, designated by McClintock & Marshall, Watsonia 17: 172. 1988, K not seen).

Conyza sumatrensis is closely related to *C. bonariensis* and *C. canadensis*. Indeed, these three species were treated as adjacent species (sub *Erigeron*) by Sprengel (1826) and Willdenow (1803). However, *E. sumatrensis* was subsequently dropped from common usage, and when recognized was commonly called *C. floribunda* (e.g., Burt, 1948). *Conyza sumatrensis* has been redescribed occasionally as an infrataxon of *C. bonariensis*, but more commonly it has been treated as a synonym of *C. bonariensis*.

Conyza sumatrensis differs from *C. bonariensis* by capitulescence structure, by smaller capitula with fewer series of marginal florets and fewer disk florets, and by lack of a reddish brown pappus. *Conyza sumatrensis*, however, resembles *C. bonariensis* by generally disciform capitula. *Conyza sumatrensis* differs from *C. canadensis* by lacking well-developed limbs in the corollas of the marginal florets, but resembles *C. canadensis* by similar capitulescence form and by a stramineous pappus. *Conyza sumatrensis* is also similar to *C. glandulifera* Cabrera of southern South America, differing from *C. glandulifera* most importantly by lacking vestiture of glandular trichomes.

1a. *Conyza sumatrensis* (Retzius) E. Walker var. *sumatrensis*

- Conyza albida* Willdenow ex Sprengel, Syst. Veg., ed. 16, 3: 514. 1826. *Erigeron albidus* (Willdenow ex Sprengel) A. Gray, Proc. Amer. Acad. Arts 5: 319. 1862, as “*albidum*.” TYPE: Brazil: sine loc., s.d., J. Hofmann-segg s.n. (holotype, B-W 15658 not seen [IDC microfiche 7440.1124.14]).
- Erigeron bonariensis* L. var. *microcephalus* Cabrera, Revista Mus. La Plata, Bot. 4(16): 88. 1941. *Conyza bonariensis* (L.) Cronquist var. *microcephala* (Cabrera) Cabrera, Manual Fl. Alred. Buenos Aires 481. 1953. TYPE: Argentina. Buenos Aires: Sierra de la Ventana, 22 Apr. 1939, A. Cabrera 5160 (holotype, LP).
- Conyza bonariensis* (L.) Cronquist f. *subleiotheca* Cuatrecasas, Webbia 24: 227. 1969. *Conyza floribunda* var.

subleiotheca (Cuatrecasas) J. B. Marshall, *Watsonia* 9: 372, 1973. TYPE: Colombia, Boyacá: Soatá, 6 Sep. 1938, J. Cuatrecasas & H. García Barriga 1026 (holotype, US; isotypes, COL not seen, F not seen).

Conyza groegeri V. M. Badillo, *Ernstia* n.s., 10: 5, 2000. TYPE: Venezuela, Amazonas: Samariapo, 100 km arriba El Orinoco, San Juan de Ucata, 30 May 1993, A. Gröger 956 (holotype, VEN not seen).

Distribution. *Conyza sumatrensis* var. *sumatrensis* is seemingly native to the Neotropics, but now occurs pantropically as well as in some temperate zones. The treatment of *C. floribunda* by Keil (1993) is in reference to this variety. *Conyza sumatrensis* var. *sumatrensis* has not previously been reported in the United States; vouchers documenting it in the United States follow: California, *Ahart* 4363 (MO); Alabama, *Deramus* D324 (MO). *Conyza sumatrensis* var. *sumatrensis* occurs in Mexico (*Gereau et al.* 2214 (MO, UC)), throughout Central America (e.g., Costa Rica, *Taylor* 4235 (NY)), the West Indies (e.g., Cuba, *Howard* 5302 (MO); Jamaica, *Philipson* 907 (MO); Puerto Rico, *Otero* 337 (MO)), and much of South America (e.g., Colombia, Antioquia, *Zarucchi et al.* 5434 (MO, US); Venezuela, *Gröger* 935 (US); Guyana, *de la Cruz* 2445 (MO, NY); Surinam, *Rombouts* 761 (MO); Ecuador, *Tafur et al.* 90 (MO); Bolivia, *Abbott* 17018 (MO, US); Brazil, *Wasum et al.* 6514 (MO)). All material in the Venezuelan Guayana called *C. bonariensis* by Pruski (1997) is redetermined here as *C. sumatrensis* var. *sumatrensis*. All Old World material of *C. sumatrensis* is referable to this variety (e.g., Malaysia, Sumatra, *Toroës* 2431 (NY); Philippines, *Merrill* 367 (MO); Australia, as cited by Stanley & Ross, 1986; Vietnam, *Cuong* 478 (MO); China, Kwangtung, *Tsang* 20774 (MO); China, Taiwan, *Boufford et al.* 19243 (MO), and as cited by Peng et al., 1998; Japan, *Naito* 7295 (MO); Ryukyu Islands, *Tawada* 2210 (MO); Sri Lanka, *Waas* 701 (MO, US); India, *Saldanha & Ramamoorthy* HFPI200 (MO), and as cited by Hajra et al., 1995; Kenya, *Gobbo et al.* 765 (MO); Tanzania, *Miller et al.* 8529 (MO); Ivory Coast, *Roberty* 13568 (MO); Greece, *Karakitsos & Turland* 1420 (MO); Corsica, as cited by Gamisans & Jeanmonod, 1998; Spain and France, as cited by Marshall, 1974; Great Britain, as cited by Wurzell, 1988), the bulk of which was formerly determined as *C. bonariensis*.

1b. *Conyza sumatrensis* var. *leiotheca* (S. F. Blake) Pruski & G. Sancho, comb. nov. Basionym: *Erigeron bonariensis* L. var. *leiothecus* S. F. Blake, *Contr. Gray Herb.* 52: 28, 1917. *Marsea bonariensis* (L.) V. M. Badillo var. *leiotheca* (S. F. Blake) V. M. Badillo, *Bol. Soc. Venez. Ci. Nat.* 10: 256, 1946, as "*leiothecus*." *Conyza bonari-*

ensis (L.) Cronquist var. *leiotheca* (S. F. Blake) Cuatrecasas, *Phytologia* 9: 5, 1963. TYPE: Guatemala, Guatemala: San Rafael, 2135 m, 8 Jan. 1915, E. Holway 39 (holotype, GH). Figure 1.

Conyza floribunda HBK, *Nov. Gen. Sp.* (folio ed.) 4: 57, 1820 [1818]. *Erigeron floribundus* (HBK) Schultz Bipontinus, *Bull. Soc. Bot. France* 12: 81, 1865. *Erigeron bonariensis* L. var. *floribundus* (HBK) Cuatrecasas, *Trab. Mus. Nac. Ci. Nat. Jard. Bot. Madrid, ser. Bot.* 33: 132, 1936, as "*floribundum*." *Conyza sumatrensis* var. *floribunda* (HBK) J. B. Marshall, *Watsonia* 10(2): 167, 1974. TYPE: Ecuador, Pichincha: juxta urbem Quito, July 1802, A. Humboldt & A. Bonpland 3100 (lectotype, designated by P. Green, *Fl. Australia* 49(1): 381, 1994, P-HBK not seen [IDC microfiche 6209, 95.III.7; photo sub F negative 37821; MO]). The second syntype collection made by Humboldt and Bonpland is from Huancabamba, Peru, but a specimen of this gathering, although seen by Steetz (1854), does not now seem to be present in the Humboldt herbarium (P-HBK).

Conyza floribunda HBK var. *laciniata* Cabrera, *Rodriguésia* 21–22 (33–34): 119, 1959. TYPE: Brazil, Rio de Janeiro: Rio de Janeiro, 18 May 1959, E. Pereira 4890 (holotype, LP [2]; isotype, RB not seen, photo LP).

Distribution. *Conyza sumatrensis* var. *leiotheca* is restricted to the Neotropics, where it is frequent, especially in montane areas. The variety occurs from Mexico south to Argentina (e.g., Mexico, *Matuda* 2443 (GH, NY); Nicaragua, *Stevens* 10912 (MO); Costa Rica, *Pruski et al.* 3118 (INB, LP, MO); Colombia, Antioquia, *Zarucchi et al.* 6228 (MO); Venezuela, *Fendler* 669 (GH, MO); Ecuador, *King & Garvey* 6910 (MO, US); Peru, *Galiano et al.* 4228 (LP, MO); Bolivia, *Churchill & Arroyo* 21473 (MO); Brazil, *Hatschbach* 33557 (MBM, MO); Argentina, *Cabrera & Frangi* 20594 (LP)).

This variety is remarkably consistent morphologically throughout much of its range. As is to be expected with weedy species, however, variants are known. Notable among such deviants are rarely encountered plants with linear-lanceolate leaves. Such plants are reminiscent of *Conyza canadensis*, but the central broadly darkened glabrous phyllaries place such plants within the limits of *C. sumatrensis* var. *leiotheca*. Some of these linear-lanceolate leaved plants have peduncles to ca. 2.5 cm long and fewer, broader phyllaries. In these features, such material resembles southern South America *C. blakei* (Cabrera) Cabrera (syns. *Erigeron bonariensis* f. *filifolia* Chodat, *E. monteridensis* Baker, non Sprengel, *Erigeron spiculosus* Hooker & Arnott var. *minor* Hooker f.). However, these linear-lanceolate leaved plants with broad phyllaries and long peduncles do not have the pinnatifid leaves that characterize *C. blakei*, and are thus seemingly best retained within *C. sumatrensis* var. *leiotheca*.

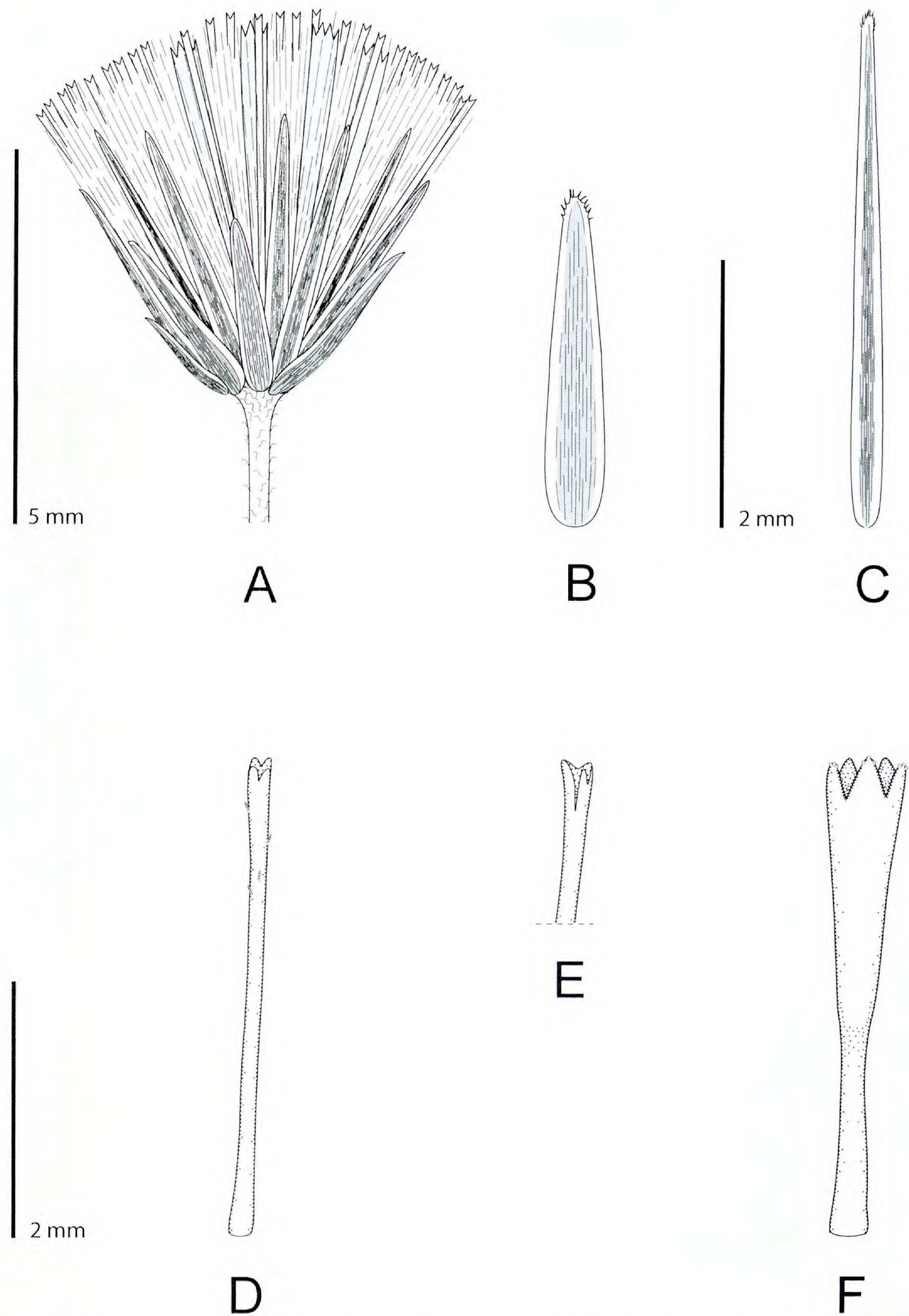


Figure 1. *Conyza sumatrensis* var. *leiotheca* (S. F. Blake) Pruski & G. Sancho. —A. Capitulum. —B. Mid-series phyllary. —C. Inner phyllary. —D. Corolla of pistillate marginal floret, apex 4-denticulate. —E. Apex of tridenticulate corolla of pistillate marginal floret. —F. Corolla of bisexual disk floret. (Drawn by Gisela Sancho from *Cabrera & Frangi 20594*, LP.)

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